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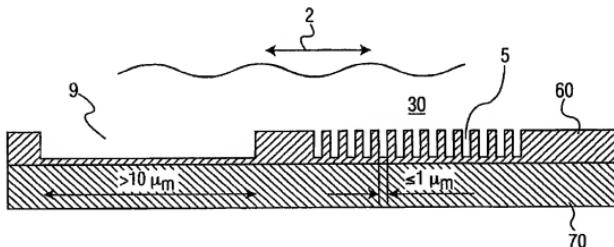
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(54) Title: METHOD OF MEASURING SUB-MICRON TRENCH STRUCTURES



(57) Abstract: The present invention uses ISTS to measure trenches with near- or sub-micron width. The trenches can be etched in a thin film on a silicon substrate. One step of the method is exciting the structure by irradiating it with a spatially periodic laser intensity pattern in order to generate surface acoustic waves. Other steps are diffracting a probe laser beam off the thermal grating to form a signal beam; detecting the signal beam as a function of time to generate a signal waveform; determining surface acoustic wave phase velocity from the waveform; and determining at least one property of the trench structures based on the dependence of surface acoustic wave phase velocity on the parameters of the structure.